

Lower Passaic River Study Area – 17 Mile RI/FS Project
Interim Draft Conceptual Site Model, December 2013
NJDEP review comments, June 13, 2014

Review of the subject document has been completed. The Draft Conceptual Site Model (CSM) for the Lower Passaic River was submitted by the Cooperating Parties Group (CPG) in January 2014 as part of the effort for information exchange in the technical workgroup meetings conducted in February and March, 2014. The intent was discussion of this document and other draft documents (risk assessments, etc.) during these planned monthly meetings. With the issuance of the Lower 8-Mile FFS by the USEPA in April 2014, the CPG requested cancelling these meetings. More recently, EPA requested that NJDEP provide any comments on the Draft CSM by June 13th. This review has been completed and resulting comments are provided below.

1. Section 2.3.1, Sediments – Longitudinal Distribution – This section presents assessment of river contamination via spatial “2-mile bins”. Although this has merit as one line of broad assessment (systematic approach, using distance as an arbitrary bin boundary), a finer assessment is recommended with regard to the geomorphic features within each “bin”. For example, due to the variation in sediment bed elevation and surface sediment texture, data should be grouped and evaluated per the following key sub-categories: central channel, side slopes (unsure if this can be discerned, otherwise, these are grouped with channel), erosional shoal areas and depositional/mudflat shoals (both east and west bank locations). Following this, evaluation of these sub-categories among all “bins” is important to understand potential similarities or differences in these geomorphically-distinct areas throughout the river.

2. Section 3.2.2, Surface Water – This section should be amended to include:

- a. Discussion of (and present on figures) contaminant concentrations in relation to Federal and State Surface Water Standards.
- b. Information on either the success of CWCM program in attaining standards and/or analytical detection limits below applicable standards, or problems related to same (or both).
- c. Clarification on whether any dissolved phase data have been collected or if this will be performed in the future. Dissolved phase contamination is an important component of contaminant transport and migration to receptors and will require evaluation.

3. Section 3.2.3, Tissue – Figure 3-9 series are very useful. A similar series should be presented for crab hepatopancreas tissue data, as this is a better indicator of crab contaminant burden and potential contaminant transport/impact to crab and upper trophic levels.

4. Section 3.3.2, Tributaries –

a. Further clarification of footnote 9 is recommended. As currently stated, the ratio of 2,3,7,8-TCDD in Saddle River sediment to this contaminant in LPR sediment is greater than 1, when actual sediment concentrations in the Saddle river are orders of magnitude below that of the LPR. How can this be -? (is there a problem with OC, head of tide influenced-sample, other factors?) Clarification or correction requested.

b. Figure 3-12 – Related to comment a, a footnote should be added on this figure to explain the apparently errant 2,3,7,8-TCDD data for the Saddle River. If a true source of this contaminant is suspected from the Saddle River, this requires further investigation.

c. Relative to the brief discussion at the top of page 18 on the potential influence of CSOs on Passaic River contamination (citing Huntley et al, 1997 and Shear et al, 1996), the CPG should integrate more recent information from the draft Focused Feasibility Study of the lower 8-Mile study area. Through that study, the tributaries, CSOs and SWOs were *not* found to be an important source for key contaminants of concern in Passaic River sediment, especially 2,3,7,8-TCDD. This information needs to be incorporated in this section.

“The best estimate for tributaries, CSOs and SWOs is that together these represent about 6 percent of the recently-deposited sediments with 95 percent confidence limits of 2 to less than 12 percent” (Passaic River 8-Mile RI Report, April 2014)

“For 2,3,7,8- TCDD and Total TCDD, no significant external contaminant source exists, and the resuspension of legacy sediments accounts for more than 90 percent (best estimate) of the dioxin burden in recently-deposited sediment.” (Passaic River 8-Mile RI Report, April 2014 and Table 5-4 of same)

5. Section 3.4, Other Stressors – The role of Superfund investigations and related remedial actions is to specifically address the impacts of chemical discharges at these sites on human health and the health of ecological receptors, which are not otherwise addressed by other regulatory or administrative programs. Although “other stressors” play a role in the overall health of river ecology, the purpose of Section 3.4 relative to remedial decision-making under CERCLA is unclear. Statements relating causation between “other stressors” and Passaic River ecological impairments (benthic community structure) should be modified or removed, unless substantiated by studies which indicate these links are in fact valid for this system. The observed impairments may be caused by, or in combination with other factors, such as chemical exposure. In addition, any discussion regarding “other stressors” in this river system would be incomplete without also acknowledging that scientific evidence has shown that chemical exposures, especially endocrine disrupting compounds (EDCs), for both wildlife and humans interfere with *effective immune system functions* and therefore may exacerbate an organism’s susceptibility to “other stressors” in the environment such as physical conditions and pathogens. 2,3,7,8-TCDD, among other site contaminants, are considered EDCs. (<http://www.unep.org/chemicalsandwaste/Portals/9/EDC/SOS%202012/EDC%20report%20Ch2-2.11.pdf>)

6. Section 4- Risk Receptors and Pathways – For the call-out box on page 22 the following revisions are recommended:

a. Second bullet - The homeless population known to inhabit some areas along the Passaic River riverbanks needs to be mentioned here. Even though this receptor group will not be quantitatively assessed in this risk assessment due to limited information regarding aspects of their exposures, given their *close association to highly contaminated sediment and surface water (and possible consumption of fish/crabs from the river)*, this group warrants noting in this section.

b. Fifth bullet – When describing risks to human health and ecological receptors, this bullet states that “...2,3,7,8-TCDD.....can also result in potential risks to some ecological receptors.” This is a significant understatement and requires revision. Through the recently released 8-Mile FFS Risk Assessment, 2,3,7,8-TCDD was found to be a dominant ecological risk driver for most categories of receptors evaluated (Benthic Macroinvertebrates, Adult Fish, Heron and Mink). It was also found to be a significant risk contributor to Avian Embryos (along with PCBs and DDx) and is known to be a potent toxicant to fish and oyster embryos. The statement should say instead: “.....2,3,7,8-TCDD..... is a significant toxicant to many ecological receptors present in the river.” (FFS, Appendix D, 2014)

c. Sixth bullet – This bullet seems to suggest that urban background conditions will play a significant role in this project. What is meant by “urban background”? Project-specific background conditions, although to be considered as part of risk management decision-making, are not expected to play a significant role in determining the need for remedial action. This is because background conditions are considered insignificant for the primary project risk driver, 2,3,7,8-TCDD, in comparison to Passaic River sediment and surface water contaminant conditions.

7. Section 4.1.3, Ecological Conceptual Site Model – The first sentence is confusing and should be corrected. The phrase“including those resulting from human activities...” is used in a manner suggesting that contaminants from “other than human activities” are key, which is not true. Since human activities are the primary source of chemical contaminants in this river, simply remove the highlighted phrase.

8. Section 4.2, Human Health – Remove information taken from and reference to the “2011 to 2012 Creel/ Angler survey of the LPRSA”, as such a study was not developed with appropriate regulatory agency oversight (USEPA or NJDEP), nor approved.

9. First Paragraph, top of page 32 – Despite fish and crab consumption bans, in addition to recreational anglers, the homeless population living in the area may also collect and consume fish and crabs from the river.

10. Section 5.2, Scour and Deposition, Regime 2 - It is expected that regime 2, moderate river flow would have a component of fine sediment re-settling *elsewhere within the river*, rather than all being flushed out to Newark Bay, as currently indicated.

11. Figure 2-3a – This figure should characterize all of Kearny Point within the study area as silt, not just the edge as currently shown; it should be consistent with Figure 4-10.

12. Section 5.2.3 Sediment Stability,

a. This section requires additional detailed information on the high resolution cores selected for the analysis presented, including: the number and identity of the cores selected, RM designation, and the geomorphic location within the river (channel, shoal - inner bend, shoal- outer bend). Early on, since the goal of these cores was to obtain an unbroken record of sedimentation, these cores were purposefully selected in areas expected to be stable. Often, these were collected in the channel. This information is critical for understanding what features of the river are represented by the analysis presented. The conclusions drawn may not apply to regions of the river not represented by the data used for this analysis.

b. Page 43- It is stated that at locations where peak Cs-137 is found at the surface, the low energy environment at these locations “precludes erosion” as the reason for this condition. This may be the case during normal flow and routine tidal cycles, however, during significant storm events, erosional forces may be greater everywhere in the river, including these locations. Erosion, along with low deposition in these areas, may contribute to the observation of peak Cs-137 and associated contaminant concentrations in surface/near surface sediment.

c. Section 5.2.3.2, Contaminant Profiles – Similar to comment a above, the assessment presented requires clarification concerning which cores (and their locations in the river) were used for the conclusions drawn, as different “features” of the river are expected to behave differently due to different hydrodynamic conditions at those locations. The current discussion seems to be limited to channel areas. Elsewhere in the river (i.e.,

outside of RM 0-1, which was provided as an example in this section) cores without distinct correlation between Cs-137 and contaminant peaks may also represent disturbed sediment bed from storm event impacts as well as actions due to dredging, in- river or near-river construction, and other disturbances.

13. Section 5.2.3.3, Bathymetry Data – Greater description (including locations, depicted on map and with representative cores) is needed, of the areas discussed in bullets 2 and 5 (page 44) for identifying the erosional areas highlighted.

14. Section 5.4.3 Estimates of Natural Recovery – NJDEP urges USEPA and their technical experts to closely examine the lines of evidence in this section as the conclusions drawn seem to differ from those determined for the 8-Mile FFS study with regard to sediment and tissue contaminant level trends.

15. Section 6, Summary –

- a. Page 60, Paragraph 1: Correction needed regarding the degree of risk assessed for ecological receptors; see comment 6b above (FFS Study, 2014).
- b. Page 60, Para 2: The last sentence of this paragraph states that targeted remedial action in slowly recovering areas will enhance natural recovery in the river. **However, missing from this discussion is the following key information: Throughout the sediment bed surface (not just in isolated areas, but rather in all silt-laden areas which comprise much of the surface area of the river), current 2,3,7,8-TCDD contaminant levels, the primary risk driver in the river, are typically several orders of magnitude greater than health-based benchmarks protective of human and ecological receptors. As a result, this situation is not conducive to “selective remedial regions”, especially in the lower 8 miles of the river and likely all silt-laden portions of the riverbed for several additional miles upstream.**

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